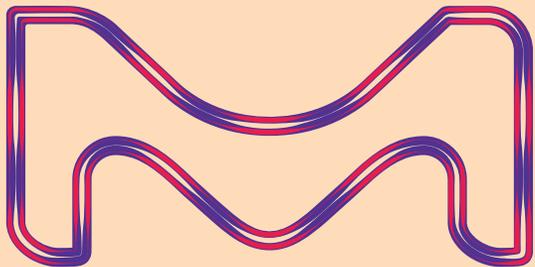


**MERCK KGAA,
DARMSTADT, GERMANY**

**39th annual J.P. Morgan
Healthcare Conference**

Stefan Oschmann, CEO
January 11, 2021





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01

strategic
roadmap

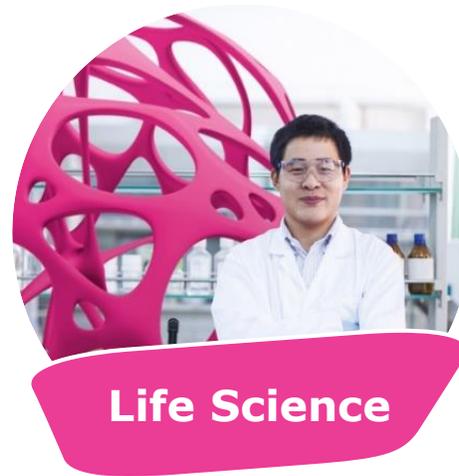
Group

Three high-tech businesses competing in attractive markets



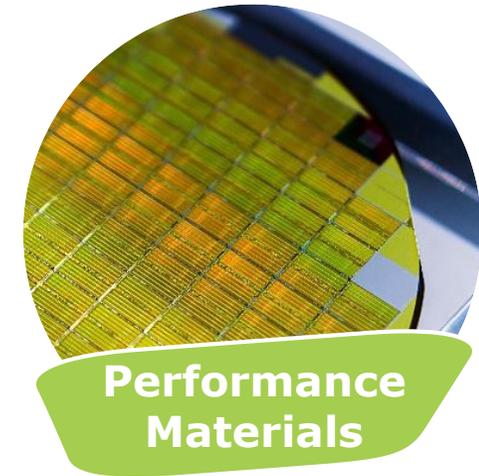
**Leading in specialty
pharma markets**

- Biologics and small-molecule **prescription medicines** against cancer, multiple sclerosis, infertility
- **Research** focus: Oncology, Immunology & Immuno-Oncology
- **Successful portfolio management:** e.g. divestment of Consumer Health and Allergopharma



**Leading life science
company**

- Tools and services for **biotech research & production**
- **Tools and laboratory supply** for academic research and industrial testing



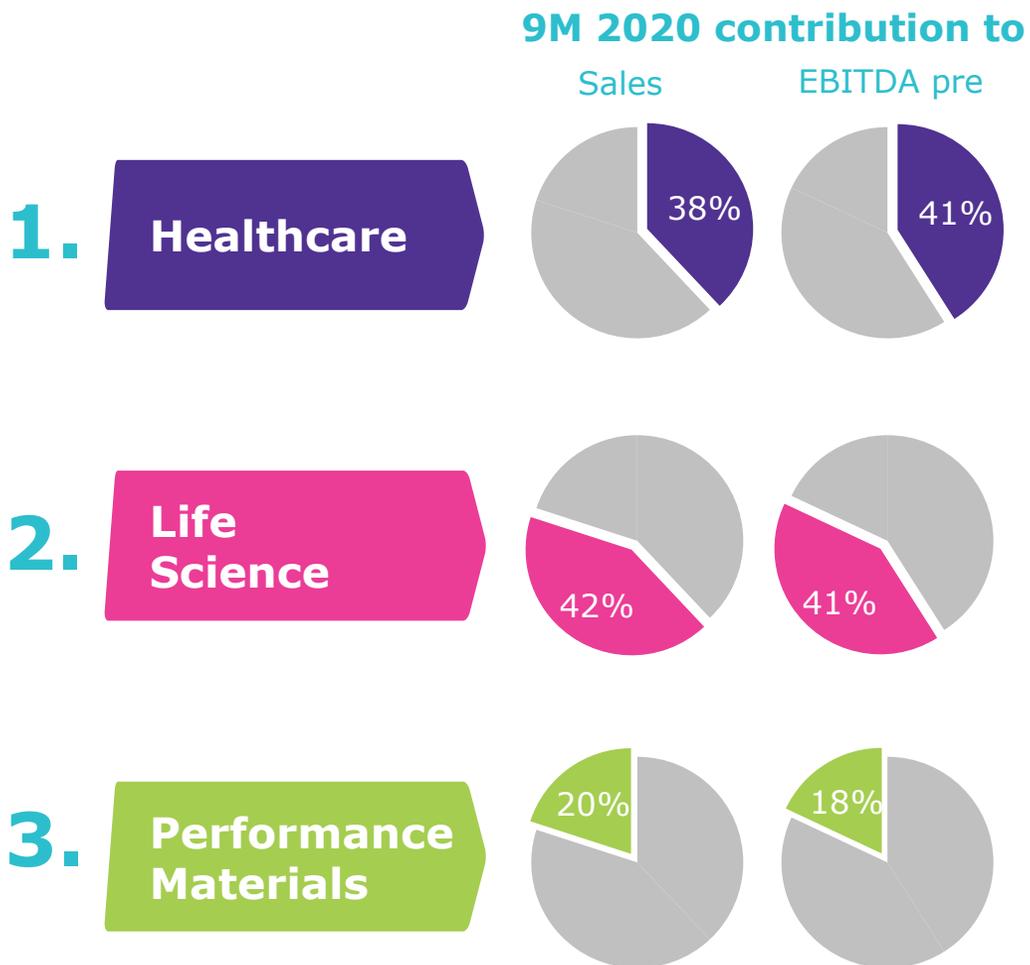
**Leading company in
high-tech solutions**

- High-tech solutions and materials for **electronics**
- Broad portfolio of **decorative and functional solutions**



Group

Today – three strong pillars as basis for profitable growth



Global specialty innovator poised for above-industry growth

- **Resilient core business** backed by excellent life cycle management
- **Strong growth** from new products, late-stage pipeline assets with blockbuster potential
- **Rigorous cost discipline** and value-maximizing pipeline prioritization

Diversified industry leader poised for above-market growth

- **Portfolio advantage** and outperformance drive above-market growth
- **Strengthen core:** products (PS), chemistry (RS), lab water (AS)
- **Establish new pillars:** PS services, gene editing and novel modalities

Leading electronics player poised for accelerating growth

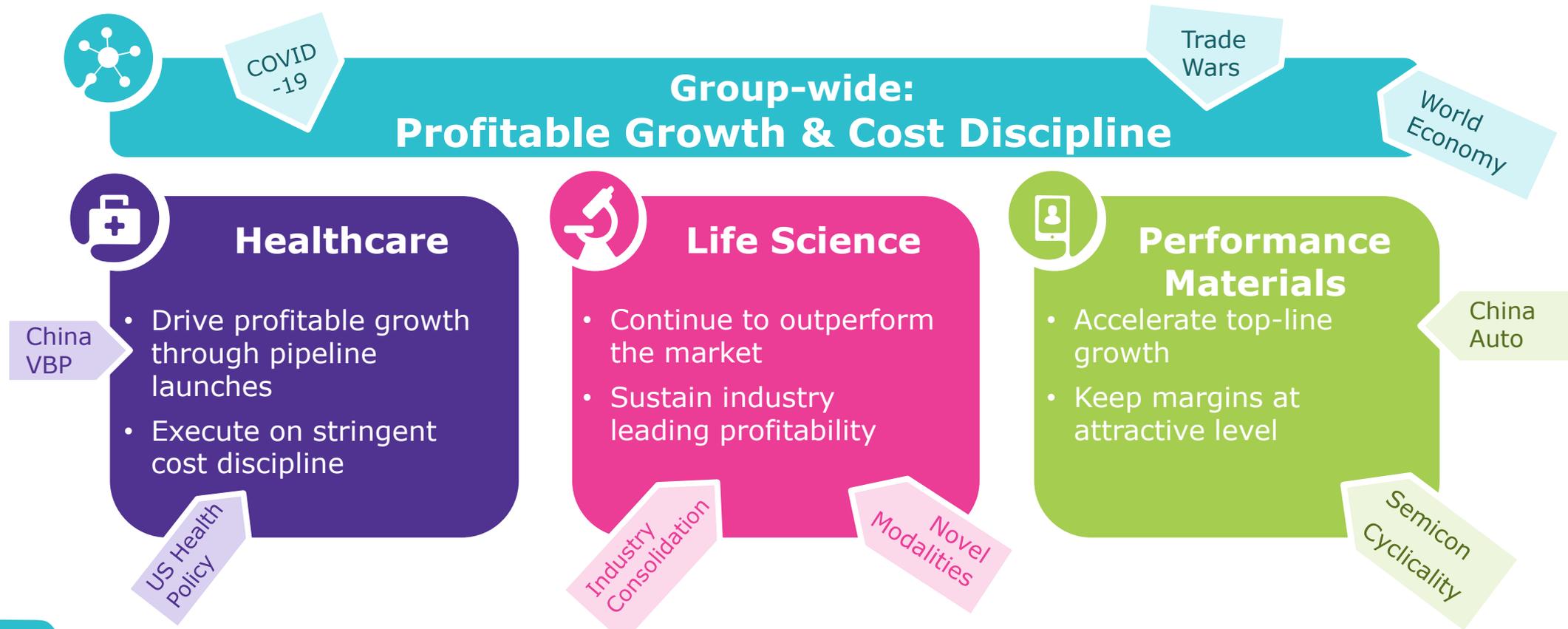
- **Growing semiconductor share** as key driver for acceleration
- **More resilient growth** through rising diversification
- **Strict cost discipline** in maturing parts of the portfolio

Acronyms: PS = Process Solutions, RS = Research Solutions, AS = Applied Solutions



Group

2021 and beyond – poised for growth in a challenging environment



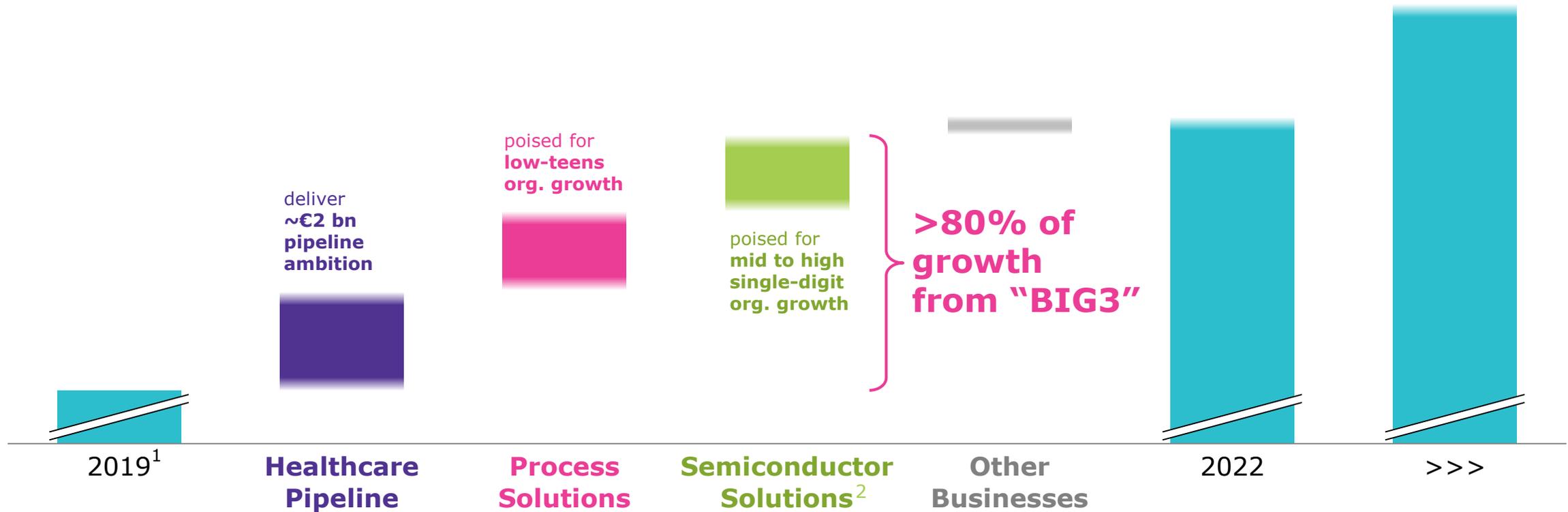
Staying on course in a potentially volatile environment

Acronym: VBP = volume based procurement



Group

Three main drivers of growth to 2022 and beyond



Beyond 2022: further significant growth potential from "BIG3" and increasing contributions from other businesses

¹ 2019 Group sales of €16.2 bn; ² Including Versum portfolio effect



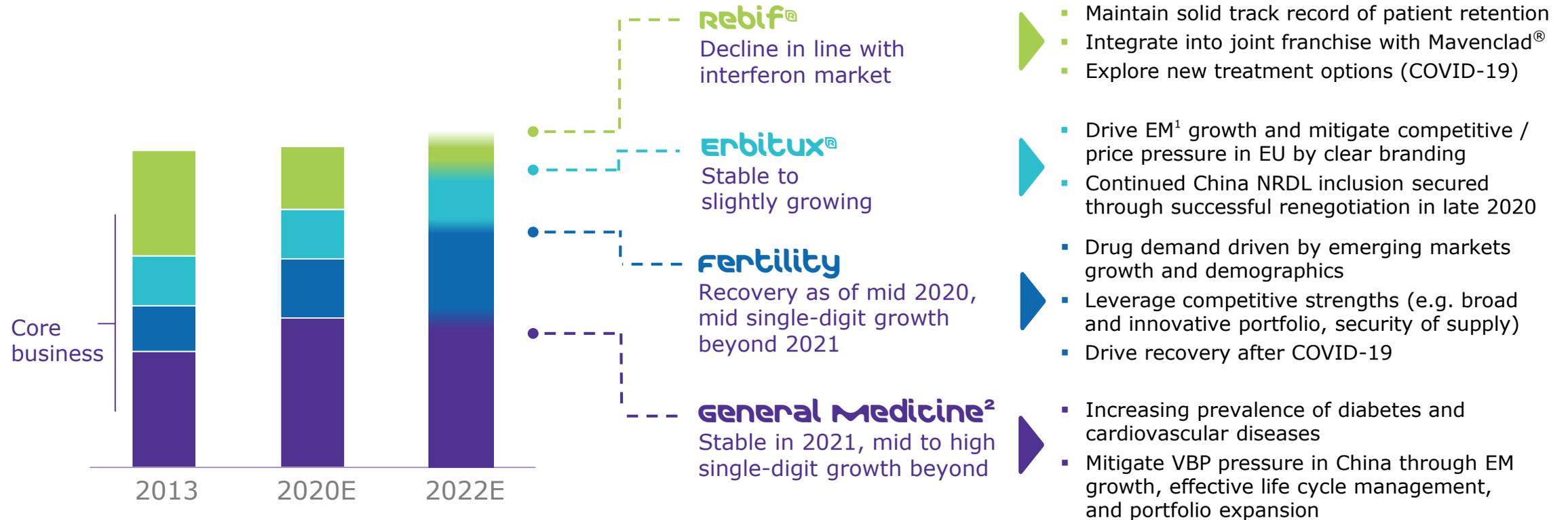
02

Healthcare

Healthcare

Confirming ambition to keep core business at least stable to 2022

Healthcare core business net sales until 2022



Core business with **36 consecutive quarters of growth** (Q2 2011 – Q1 2020)

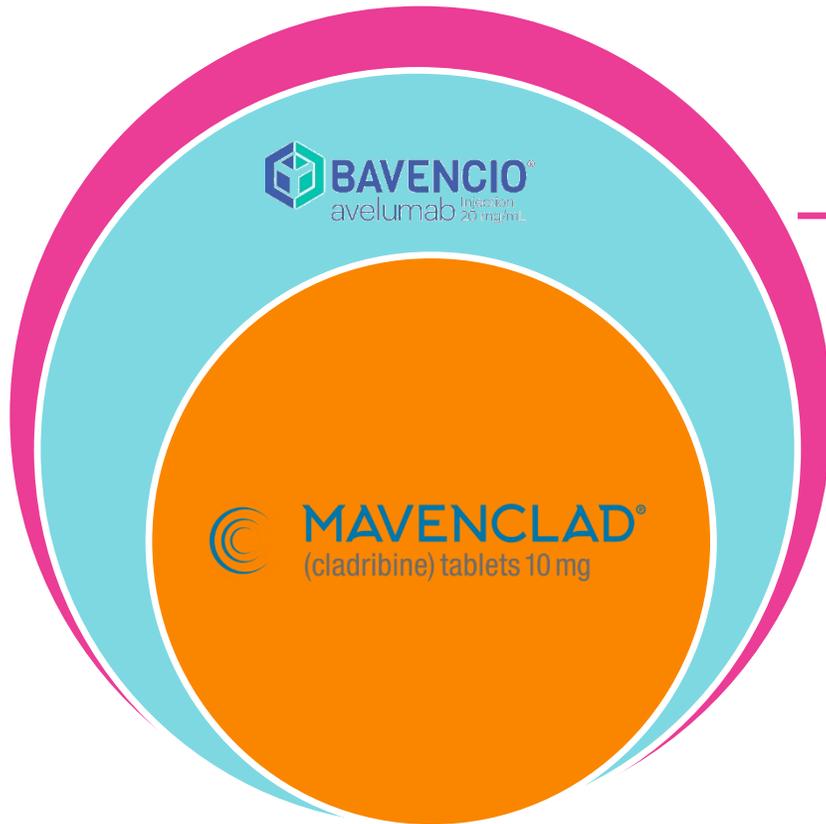
Growth to **pick up after COVID-19 impact** in Q2 2020, further **growth potential after 2022**

¹ EM: emerging markets; ² includes General Medicine, CardioMetabolic Care (CMC) and Endocrinology



Healthcare

Mavenclad and Bavencio launches on track for ~€2 bn pipeline ambition in 2022



Tepotinib

- Approved in Japan on March 25, 2020 (Sakigake and ODD granted in 2018 & 2019)
- Filing accepted by US FDA on August 25, 2020 (granted priority review under RTOR), US approval expected in Q1 2021

Bintrafusp alfa

- Multiple non-correlated potentially registrational studies across various tumor types ongoing
- First data read-outs expected in early 2021

Bavencio®

- Approved for aRCC (USA, EU, Japan), mMCC (50 countries incl. USA and EU), and UC 2L (USA, Canada, Israel)
- UC 1L: Approved by FDA on June 30, 2020; Approval by EMA and Japanese MHLW expected in H1 2021
- Phase III read-out remaining: NSCLC 1L (est. primary completion date: April 2021)

Mavenclad®

- Global peak sales: €1.0–1.4 bn
- Approved in 81 countries, including USA, EU, Canada and Australia
- Global launch continuing to make progress
- Recovery from peak COVID impact visible as of June

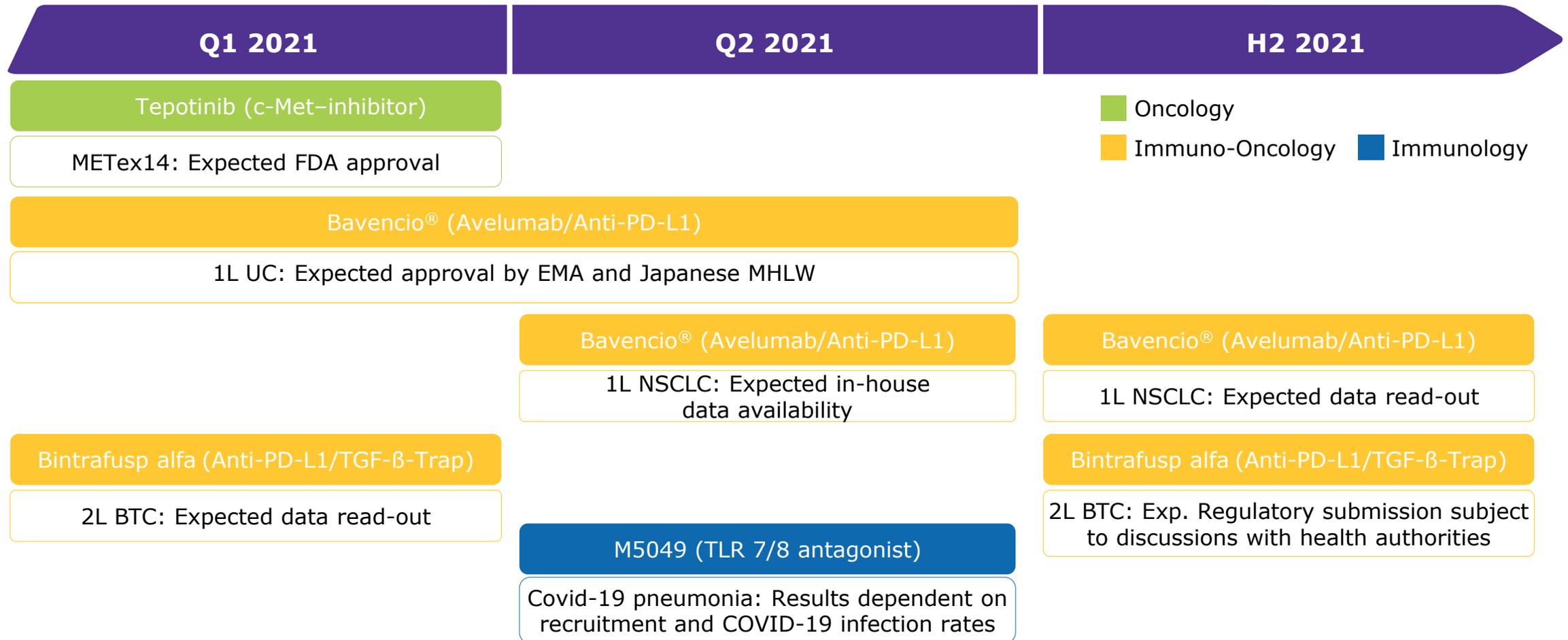
ILLUSTRATIVE - Not to scale;

Acronyms: BTB = Breakthrough Designation; ODD = Orphan Drug Designation; IA = Interim Analysis; RTOR = Real-Time Oncology Review; sBLA = Supplemental Biologics License Application



Healthcare

Catalysts – Significant developmental progress across Oncology and Immuno-Oncology portfolio expected in 2021



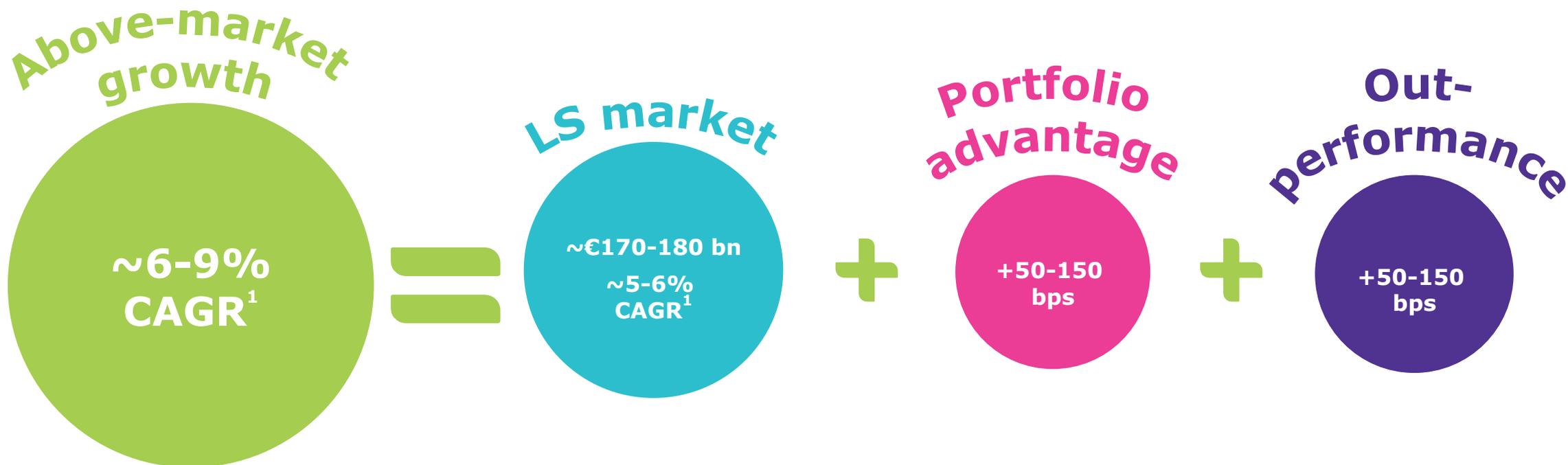
Acronyms: BTC = Biliary Tract Cancer, EMA = European Medicines Agency, FDA = U.S. Food and Drug Administration, MHLW = Ministry of Health, Labour and Welfare, NSCLC = Non-Small Cell Lung Cancer, TLR = Toll-like receptor, UC = Urothelial Cancer



Life science

03

Improved mid-term sales outlook driven by market and portfolio focus



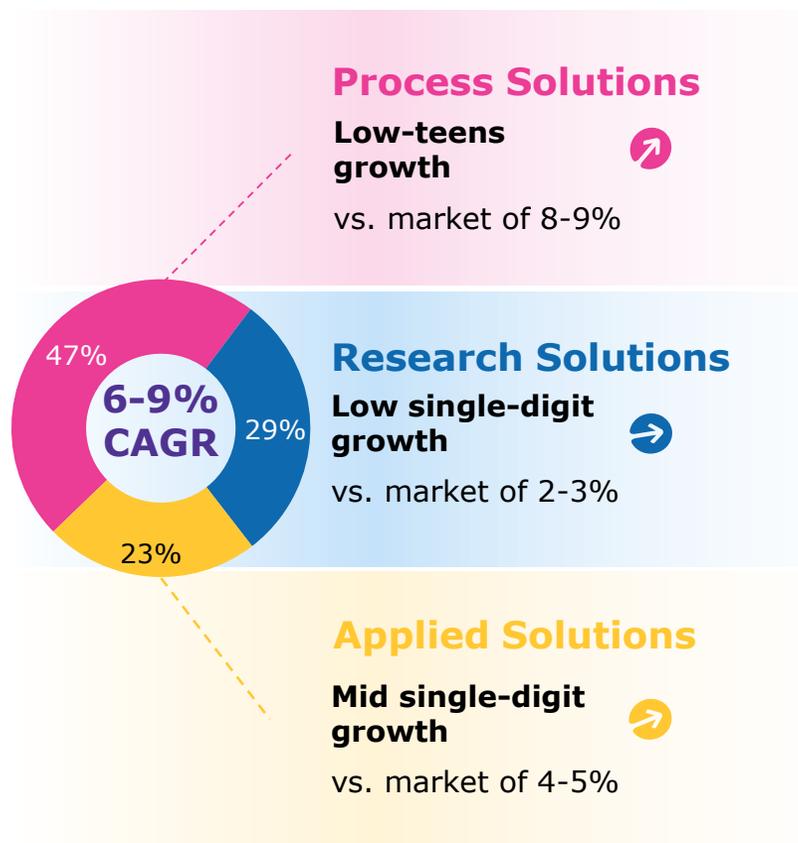
- **Market outlook improving** further, mainly due to **Process** segment
- **Above-market growth set to continue** due to **portfolio advantage** and **outperformance**

¹ Company estimate based on industry forecast over 5-year horizon



All business units contributing to above-market growth

Sales split¹



Mid-term outlook²

Process Solutions

Low-teens growth

vs. market of 8-9%



Research Solutions

Low single-digit growth

vs. market of 2-3%



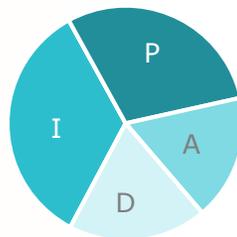
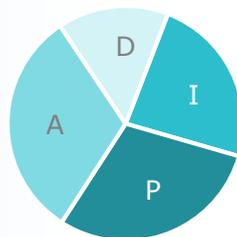
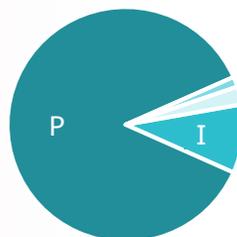
Applied Solutions

Mid single-digit growth

vs. market of 4-5%



Customer Split³



Fundamental growth drivers

- **Biologics:** global mAbs⁴ production growing by ~11-15% p.a. for 2020-2024⁵ driven by new molecules and biosimilars
- **Diversification:** contribution by top 10 molecules will decline to ~30% until 2024 from ~50% in 2020⁶
- **Novel modalities:** cell & gene therapy market with >30% CAGR 2020-2024⁵, complex delivery drives demand for services and viral vectors
- **Research activity:** >9,000 pre-clinical projects in research pipelines⁷; rising number of experiments backs healthy growth in biotechs/CROs⁸
- **Public and private funding:** availability, access and predictability drive demand from academia and emerging biotechs
- **Emerging technologies:** high growth technologies for drug discovery and development, e.g. advanced cell culture and AI drug discovery
- **Regulation:** rise in quality standards and increasing demand for testing across customer segments
- **Population and economic growth:** demand for access to more sophisticated products and services rises, e.g. in emerging markets
- **Speed:** need for fast testing results raises requirements for Applied customers, esp. in clinical testing and food & beverage testing

Customer Segments: **P** Pharma and Biotech **I** Industrial and Testing **A** Academia **D** Diagnostics

¹ Based on H1 2020, CAGR is organic mid-term ambition; ² growth rates are organic sales CAGRs; ³ indicative only; ⁴ mAbs = monoclonal antibodies; ⁵ Source: company estimate based on industry forecasts;

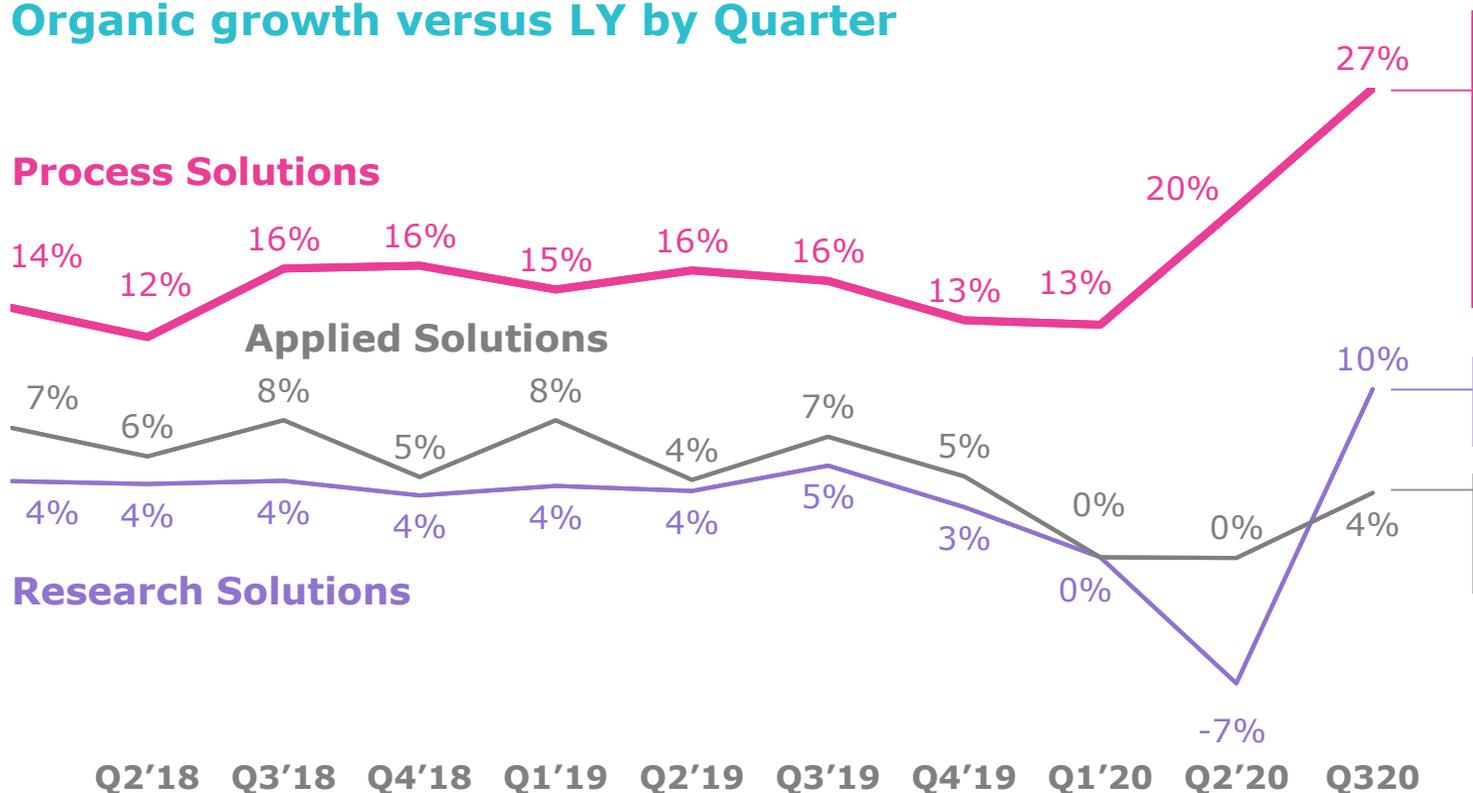
⁶ Source: EvaluatePharma; ⁷ Source: statista; ⁸ CRO = Contract Research Organization



Life Science

Significant upside potential for Process Solutions; Research and Applied started recovering

Organic growth versus LY by Quarter



- **Strong tailwinds** in Process Solutions
- **Order intake** accelerating to **>50%**
- **Sustainable increase** in underlying demand
- **Capacity investments** ongoing
- **Catch-up** effects in Q3
- **Some pull-in** effects from Q4
- Visible **recovery in Q3**
- **Returning** to underlying growth rate



Confirm mid-term outlook: **Life Science downsides to fade**, some **upsides to remain**
 Q4 scenario assumes **Research normalization** but no additional impact from imminent lockdowns



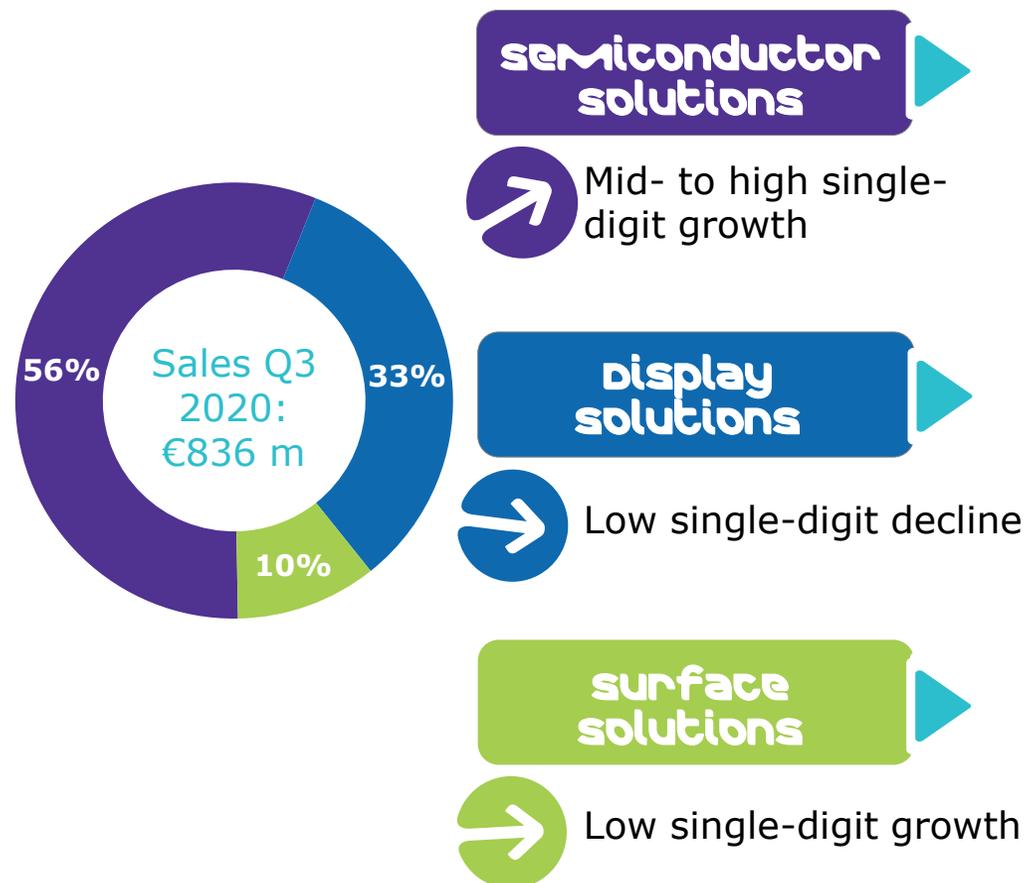


performance
materials

04

Electronics re-focus drives improved mid-term outlook: 3 to 4% sales CAGR

Mid term outlook



- Continued market growth due to technological advances (Artificial intelligence, 5G, Big Data and cloud, Internet of Things) serving customers in **Logic, Memory, Packaging and others**
 - 4 to 6% market growth¹
 - 200 to 300bps above-market growth from share gains & better portfolio (incl. 100 to 150bps additional growth from integration top-line synergies)
-
- Driven by trend to **bigger TV size, higher resolutions, more mobile devices**
 - 3 to 4% growth of total LCD m² area², while price pressure continues
 - 18 to 22% growth of total OLED m² area² with slight to moderate market share gains
 - OLED material market to exceed LC material market by 2022³
-
- Well balanced exposure to **automotive** and **cosmetics** end market
 - Drivers: rising living standards, higher disposable income in growing markets and increasing demand for high value products at reasonable prices
 - Light vehicle production and relevant cosmetics end markets returning to growth in 2021 and reaching 2019 levels by 2022 and beyond⁴

¹Source: Jan 2020 IC Insights 2018-2024 CAGR for wafer starts in million units; ²Source: Omdia Display Market Outlook, Q1 2020; ³Internal Business Intelligence; ⁴ Sources: LMC Automotive Light Vehicles Forecast, Aug 2020 & Euromonitor BPC (Beauty & Personal Care) Aug 2020

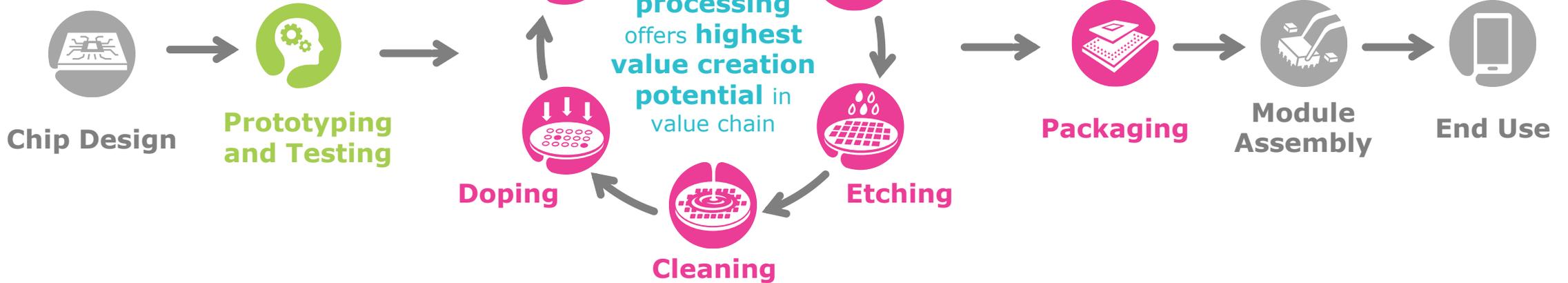


Performance Materials

Unique comprehensive products and services portfolio offers end-to-end solutions, well-placed in high growth segments



Steps of Merck KGaA, Darmstadt, Germany customers in manufacturing integrated circuits



Steps in Group's Delivery Systems & Services business



- Group Semiconductor Materials offering
- Group Delivery Systems & Services offering
- Group Intermolecular products & services



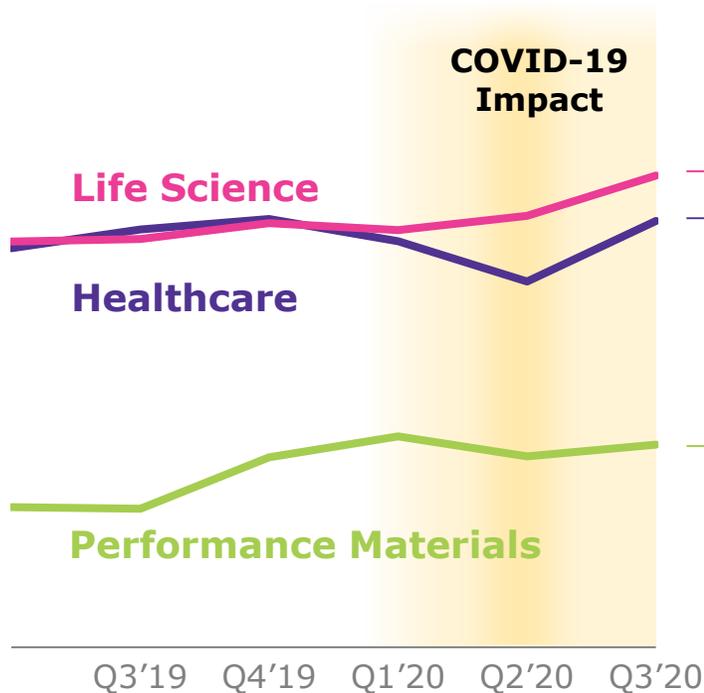
05

**Guidance &
outlook**

Group

Successful crisis management increasingly mitigates pandemic impact

Quarterly Net Sales in €m*



Underlying developments

- **Life Science well positioned** for new COVID-19 driven demand trends
- **Process business** rapidly addressing new market needs, **fueling net upside**
- Research and Applied **driving recovery in Q3**
- **Fertility: well managed return** to pre COVID-19 levels - not yet all regions
- **Strong Mavenclad[®] recovery** being driven since June
- **Bavencio[®] UC launch** progressing very well on a largely virtual launch
- **General Medicine** on track with good volume development
- Managing visible **recovery in Q3**, but not yet growing organically
- **Semiconductors Solutions' strength** within strong market
- Net downside from COVID-19 **in Display and Surface**

* At fixed 2019 FX rates

Guidance upgrade proof point of **excellent crisis management** and **strong business performance**



Group

Full-year 2020 guidance

Net sales:

Organic: +4% to +5% YoY
Versum growth contribution in the mid-single digits %
FX: -2% to -3% YoY
~€17.1 – 17.5 bn

EBITDA pre:

Organic: +14% to +16% YoY (*ex Biogen¹: +6% to +8%*)
Mid-single digit % growth from Versum
FX: -3% to -5% YoY
~€5.05 – 5.25 bn (*thereof Biogen¹ €365 m*)

EPS pre:

~ €6.50 – 6.80
(*thereof Biogen¹ €0.63 m*)



Executive Summary



Group

Successfully driving transformation into a leading science and technology company

steady earnings growth with high margins and a low risk profile



setup

Three-pillar structure strengthened further as a resilient basis; COVID-19 crisis as another proof point



Growth Engines

Healthcare pipeline, Process Solutions and Semiconductor Solutions will be key drivers of growth to 2022 and beyond



Execution

Delivery on strategic priorities ensures profitable growth; regaining financial flexibility with higher likelihood of regular bolt-ons post 2022

